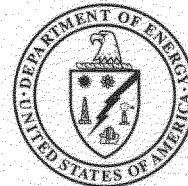


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U.S. Department of Energy
Idaho Operations Office

ICDF Complex Operations Waste Management Plan



Idaho National Engineering and Environmental Laboratory

ICDF Complex Operations Waste Management Plan

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Idaho Operations Office

ABSTRACT

This Waste Management Plan functions as a management and planning tool for managing waste streams generated as a result of operations at the INEEL CERCLA Disposal Facility Complex.

The waste management activities described in this plan support the selected remedy presented in the Waste Area Group 3, Operable Unit 3-13 Final Record of Decision for the operation of the INEEL CERCLA Disposal Facility Complex. This plan identifies the types of wastes that are anticipated during operations at the INEEL CERCLA Disposal Facility Complex, including those wastes currently in storage at the Staging and Storage Annex. In addition, this plan presents management strategies and disposition for these anticipated waste streams.

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ACRONYMS

AOC	area of contamination
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFA	Central Facilities Area
CFR	Code of Federal Regulations
DOE	Department of Energy
DOE-ID	Department of Energy Idaho Operations Office
EPA	Environmental Protection Agency
HEPA	high-efficiency particulate air
HW	hazardous waste
ICDF	INEEL CERCLA Disposal Facility
INEEL	Idaho National Engineering and Environmental Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
IW	industrial waste
LDR	land disposal restriction
LLW	low-level waste
MLLW	mixed low-level waste
O&M	operations and maintenance
OU	operable unit
P2/Wmin	pollution prevention and waste minimization
PCB	polychlorinated biphenyl
PPE	personal protective equipment
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RCT	radiological control technician
ROD	Record of Decision

RRWAC	INEEL reusable property, recyclable materials, and waste acceptance criteria
SSA	Staging and Storage Annex
SSSTF	Staging, Storage, Sizing, and Treatment Facility
TSCA	Toxic Substances Control Act
USC	United States Code
WAC	Waste Acceptance Criteria
WAG	waste area group
WMP	Waste Management Plan

ICDF Complex Operations Waste Management Plan

1. INTRODUCTION

The U.S. Department of Energy Idaho Operations Office (DOE-ID) authorized a remedial design/remedial action for the Idaho Nuclear Technology and Engineering Center (INTEC) in accordance with the Waste Area Group (WAG) 3, Operable Unit (OU) 3-13 Record of Decision (ROD) (DOE-ID 1999a). The OU 3-13 ROD requires the removal and on-Site disposal of some of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) remediation wastes generated within the boundaries of the Idaho National Engineering and Environmental Laboratory (INEEL).

The INEEL CERCLA Disposal Facility (ICDF) Complex will be an on-Site, engineered facility, located south of INTEC and adjacent to the existing percolation ponds. Designed and authorized to accept not only WAG 3 wastes, but also wastes from other INEEL CERCLA actions, the ICDF Complex will include the necessary subsystems and support facilities to provide a complete waste management system.

Only INEEL on-Site CERCLA wastes meeting the Agency-approved Waste Acceptance Criteria (WAC) will be accepted at the ICDF Complex. An important objective of the WAC is to ensure that hazardous and radioactive wastes disposed of in the ICDF landfill or evaporation pond will not result in exceeding groundwater quality standards in the underlying aquifer. The WAC will include restrictions on contaminant concentrations (based on groundwater modeling) with the goal of preventing future risk to the Snake River Plain Aquifer. Wastes managed at the ICDF Complex will also meet the National Emission Standards for Hazardous Air Pollutants and Clean Air Act applicable or relevant and appropriate requirements and corresponding operational limitations.

The ICDF landfill has a capacity of approximately 510,000 yd³. Most of this waste will be contaminated soil, but debris and CERCLA investigation-derived waste are also included in the waste inventory.

1.1 Purpose and Objectives

This Waste Management Plan (WMP) is intended to provide a management and planning tool for identifying and managing the waste streams generated from the ICDF Complex operations.

1.2 Scope

This WMP addresses management of wastes generated as a result of ICDF Complex operations, including those wastes currently in storage at the Staging and Storage Annex (SSA). Waste management issues arising from on-Site CERCLA remediation activities not associated with the ICDF Complex operations are not discussed in this WMP.

2. FACILITY DESCRIPTION

The INTEC location at the INEEL is shown in Figure 2-1. The ICDF Complex is located south of the INTEC, as shown in Figure 2-2. This figure provides a schematic of the ICDF Complex, which includes the following major components:

- The disposal cells (landfill)
- An evaporation pond, consisting of two cells
- The SSA
- The Staging, Storage, Sizing, and Treatment Facility (SSSTF), which is composed of the decon building, the admin trailer, and several staging and storage areas in the vicinity.

The ICDF Complex, including a buffer zone, will cover approximately 40 acres, with a landfill disposal capacity of approximately 510,000 yd³. The ICDF landfill meets the substantive requirements of Resource Conservation and Recovery Act (RCRA) Subtitle C (42 USC 6921 et seq.), Idaho Hazardous Waste Management Act (HWMA 1983), DOE O 435.1, and Toxic Substances Control Act (TSCA) polychlorinated biphenyl (PCB) landfill design and construction requirements (15 USC 2601 et seq.). The landfill is the consolidation point for CERCLA-generated solid wastes within the INEEL boundaries and will additionally receive CERCLA-generated wastes outside WAG 3 that meet the land disposal restrictions (LDR) requirements (DOE-ID 2002a).

The evaporation pond, designated as a RCRA Corrective Action Management Unit in the OU 3-13 ROD, will be the treatment site for ICDF landfill leachate and other aqueous wastes generated as a result of operating the ICDF Complex. In addition, other aqueous wastes, such as existing OU 3-13 Group 4 and Group 5 purge water, may be treated in the evaporation pond in accordance with the *Waste Acceptance Criteria for ICDF Evaporation Pond* (DOE-ID 2002b).

The SSA, located within the INTEC fenced area, serves as a storage area for INEEL CERCLA waste. Wastes from WAG 3 and other CERCLA actions within the INEEL boundaries will be stored at the SSA during the construction of the ICDF Complex. The operation of the SSA will be in accordance with the *INEEL CERCLA Disposal Facility Complex Remedial Action Work Plan (RAWP)* (DOE-ID 2003a). After the RAWP is finalized, aqueous wastes that cannot be directly treated in the evaporation pond (e.g., petroleum-contaminated liquids) may be stored at the ICDF Complex. At some time in the future, a portion of the SSA may be transitioned to a staging area, which will be conducted in accordance with the requirements provided in Section 5 of the *ICDF Complex Operations and Maintenance Plan (O&M Plan)* (DOE-ID 2003b).

The ICDF Complex will accept CERCLA wastes such as low-level waste (LLW), mixed low-level waste (MLLW), hazardous waste (HW), and TSCA remediation wastes for disposal.

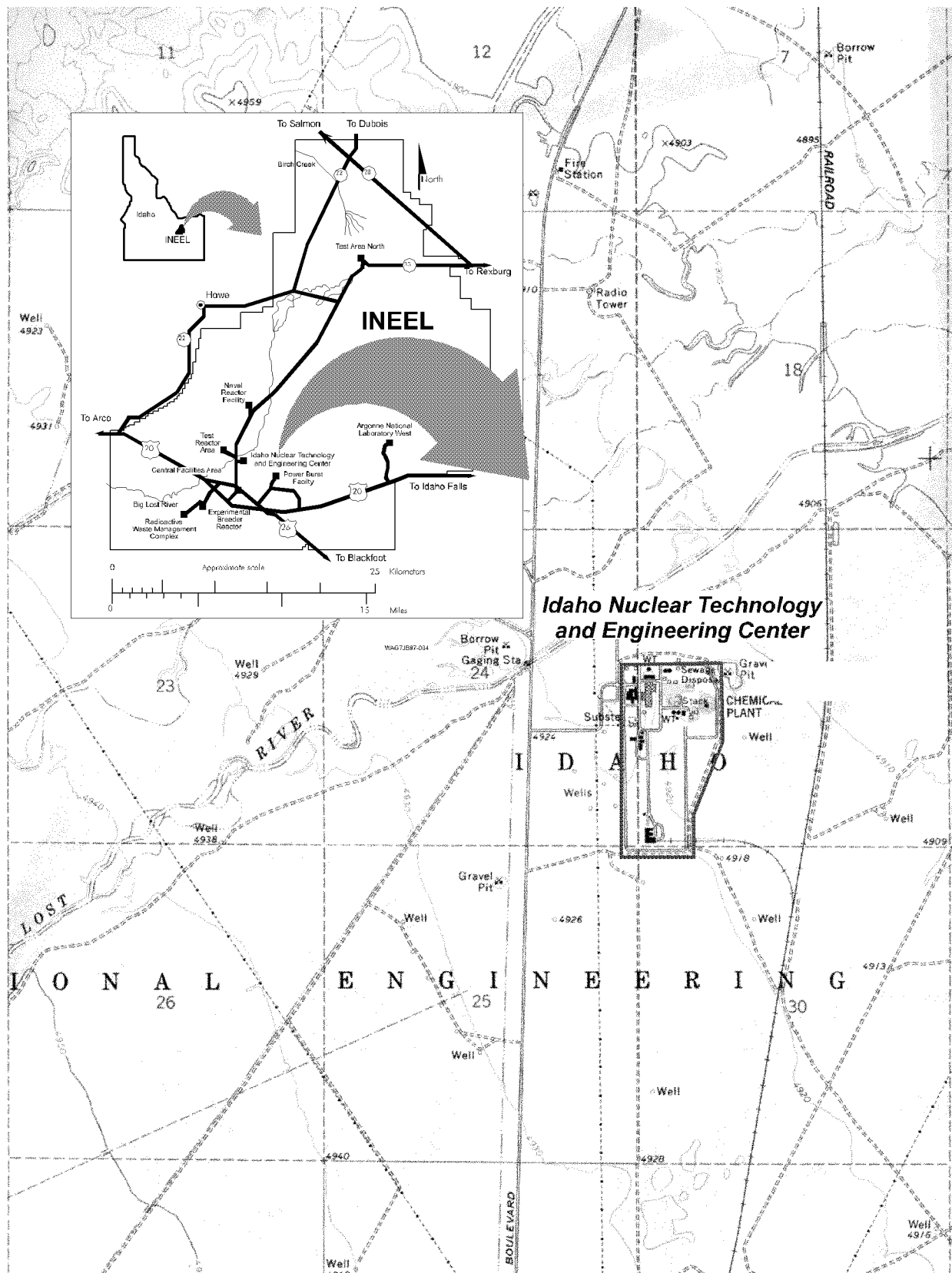


Figure 2-1. The INTEC location at the INEEL.

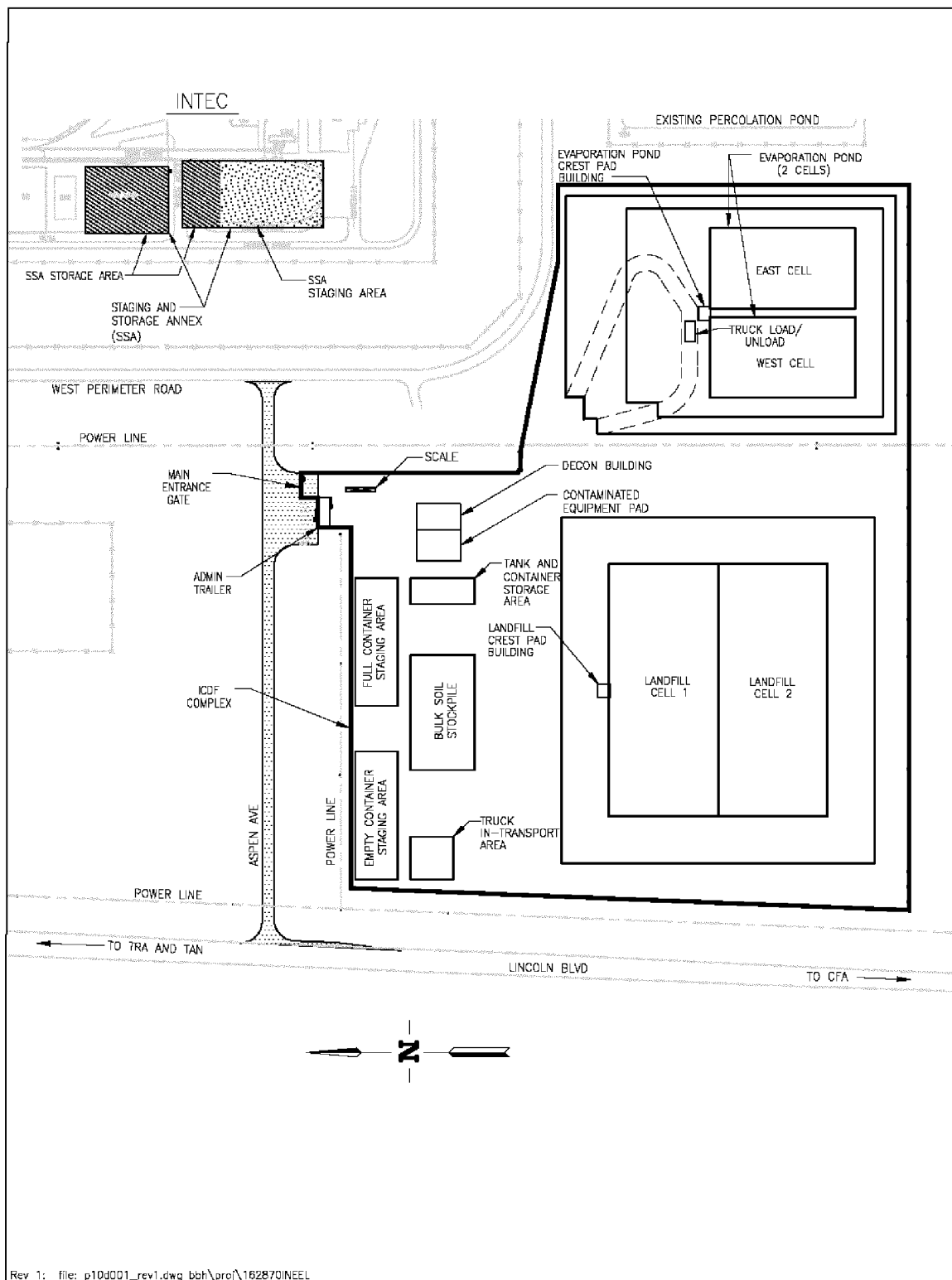


Figure 2-2. Location of the ICDF Complex components and proximity to the INTEC.

3. WASTE GENERATION

The following sections provide descriptions of the waste streams expected to be generated as a result of ICDF Complex operations. The ICDF Complex RAWP and the O&M Plan provide further details regarding the ICDF Complex system design and operations (DOE-ID 2003a, 2003b).

All ICDF Complex generated wastes will be managed in a similar to the management of wastes from other ICDF Complex users. Wastes will be identified, containerized, characterized, tracked, staged or stored (if necessary), treated (if necessary), and disposed of as described in the various elements of the ICDF Complex RAWP (DOE-ID 2003a).

3.1 Waste Management Assumptions

Waste streams generated by ICDF Complex operations will be managed under the following assumptions:

- All wastes generated during the course of ICDF Complex operations are CERCLA remediation wastes.
- Wastes generated during ICDF Complex operations may be disposed of in the ICDF landfill, subject to meeting the *Waste Acceptance Criteria for ICDF Landfill* (DOE-ID 2002c), or the evaporation pond, subject to the evaporation pond WAC (DOE-ID 2002b).
- Wastes resulting from ICDF Complex operations are generated within the OU 3-13 area of contamination (AOC). Therefore, staging of these wastes in the Bulk Soil Stockpile Staging Area or Full Container Staging Area (40 CFR 264.554) will not trigger placement (DOE-ID 1999a). Placement is defined in OSWER Directive 9347.3-05FS (EPA 1989). If wastes require treatment by stabilization in the Decon Building, these wastes would meet LDRs.
- Management of wastes generated during ICDF Complex operations will be coordinated with other ICDF Complex operations as described in the ICDF Complex RAWP and ICDF Complex O&M Plan (DOE-ID 2003a, 2003b).
- ICDF Complex operational wastes (e.g., oil/water separator, concrete P-trap, and evaporation pond cleanout) may be disposed to the ICDF landfill provided these wastes meet the ICDF landfill WAC (DOE-ID 2002c). Sediments from the evaporation ponds disposed to the landfill will be treated as necessary, and will meet the requirements of 40 CFR 268.48.
- Soil wastes (soil is defined as materials that are primarily of geologic origin such as sand, silt, loam, or clay, that are indigenous to the natural geologic environment at or near the ICDF Complex; for example, drill cuttings) generated as part of ICDF Complex operations that have triggered placement may be evaluated using the “Alternative LDR treatment standards for contaminated soil” (40 CFR 268.49). Compliance with 40 CFR 268.49 alternative treatment standards for soil will be accomplished by achieving a 90% reduction in reasonably expected hazardous waste constituents and by ensuring the soil does not exhibit a characteristic. For soils that carry a U134 hazardous waste number the soil must undergo testing using Environmental Protection Agency (EPA) SW-846 test method 9045C and documenting that soil pH is between 2.0 and 12.5, in addition to the 90% reduction criteria. Any alternative methods to the above would require Agency concurrence. If any constituent subject to treatment to a 90% reduction standard would result in a concentration less than 10 times the Universal Treatment Standard for that

constituent, treatment to achieve constituent standards less than 10 times the Universal Treatment Standards is not required.

3.2 Waste Identification

Table 3-1 identifies and describes the waste types that are expected to be generated as a result of ICDF Complex operations, management strategies, and the proposed disposition of the waste types. In addition to the waste types included in Table 3-1, alpha low-level, transuranic, and high-level wastes could potentially be generated by the ICDF Complex due to spill cleanup of temporarily stored wastes at the Complex. In the event that alpha low-level, transuranic, or high-level wastes are generated at the Complex, these wastes will be properly containerized in compatible containers for the waste type and the waste containers will be stored in a safe configuration until appropriate disposition can be arranged.

Table 3-1. Waste management during ICDF Complex operations.

Waste Type	Description	Management Strategy	Disposition
Industrial waste (IW)	<p>Solid waste generated by industrial processes, manufacturing, and support processes (40 CFR 243) that are not defined as hazardous waste or LLW. Certain wastes such as nontraining-related personal protective equipment (PPE), petroleum-contaminated material such as soil, sand, gravel, or other earthen material, engine oil filters, etc., require a waste stream-specific, documented waste determination per the <i>INEEL Reusable Property, Recyclable Materials, and Waste Acceptance Criteria</i> (RRWAC) (DOE-ID 1999b).</p> <p>Activities that may generate IW include administrative activities, sampling, and cleanup (e.g., from petroleum spills).</p>	<p>All wastes must be characterized, documented, and tracked if necessary as described in Section 5 of this WMP.</p> <p>If necessary, solid waste streams (i.e., those with no free liquids) will be staged in the ICDF Complex and managed in accordance with Section 5 of this WMP and Section 5 of the ICDF Complex O&M Plan (DOE-ID 2003b).</p> <p>Other liquid wastes from ICDF Complex operations will be transferred to the evaporation pond if they meet the WAC (DOE-ID 2002b).</p> <p>IW will be transported for disposal at the Central Facilities Area (CFA) Landfill. Recyclable and reusable items are managed under Section 4.2 of this WMP and Section 4.11 of the ICDF Complex O&M Plan, and are not considered waste.</p> <p>Requirements for disposal (described in the RRWAC) must be met.</p>	<p>INEEL Landfill Complex or recycled/reused under the RRWAC and this WMP. If waste does not meet the RRWAC, waste will be managed at the ICDF Complex or sent to an off-Site facility in accordance with CERCLA off-Site policy (40 CFR 300.440).</p>

Table 3-1. (continued).

Waste Type	Description	Management Strategy	Disposition
Low-level waste (LLW)	<p>Waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, by-product, or naturally occurring radioactive material.</p> <p>Secondary LLW may include soil, solid sampling and monitoring materials, tarps, and other material from storage and staging activities, equipment that cannot be decontaminated, and other radiologically contaminated materials such as petroleum-contaminated media (i.e., soil or other absorbent materials containing radiological- and petroleum-contaminated materials).</p> <p>Activities that may generate LLW include sampling and monitoring, management of storage and staging areas, decontamination, dust control, drilling (including drill cuttings), operation of the oil/water separator, and stabilization activities.</p>	<p>All wastes must be characterized, documented, and tracked if necessary as described in Section 5 of this WMP.</p> <p>If necessary, solid waste streams (i.e., those with no free liquids) will be staged in the ICDF</p> <p>Complex and managed in accordance with Section 5 of this WMP and Section 5 of the ICDF Complex O&M Plan (DOE-ID 2003b).</p> <p>Other liquid wastes from ICDF Complex operations will be transferred to the evaporation pond if they meet the WAC (DOE-ID 2002b).</p> <p>Aqueous wastes that do not meet the evaporation pond WAC (e.g., petroleum-contaminated media from the oil/water separator) may be treated to meet the ICDF landfill WAC and disposed of in the landfill, or held until appropriate on-Site or off-Site treatment, storage, or disposal is arranged.</p> <p>Secondary LLW wastes generated as a result of ICDF Complex operations will be disposed of in the landfill or the evaporation pond.</p>	<p>ICDF landfill or evaporation pond.</p> <p>In the unlikely event liquid or nonliquid wastes do not meet the ICDF landfill or evaporation pond WAC, they will be containerized, treated, and/or stored at the ICDF Complex as necessary or required until appropriate on-Site or off-Site disposal is arranged.</p>

Table 3-1. (continued).

Waste Type	Description	Management Strategy	Disposition
Hazardous waste (HW)	<p>Waste designated as CERCLA, to include hazardous by the EPA regulations (40 CFR 261.3).</p> <p>Secondary HW streams may include (but are not limited to) soil, materials that are determined hazardous based on process knowledge, materials from sampling activities, unused product that cannot be recycled, decontamination materials, and materials used during sampling or cleanup activities.</p> <p>Activities that may generate HW include sampling, management of storage and staging areas, decontamination, dust control, drilling (including purge water and drill cuttings), use of product that cannot be recycled, and stabilization activities.</p>	<p>All wastes must be characterized, documented, and tracked as described in Sections 4 and 5 of this WMP.</p> <p>If necessary, solid waste streams (i.e., those with no free liquids) will be staged in the ICDF Complex and managed in accordance with Sections 4 and 5 of this WMP and Section 5 of the ICDF Complex O&M Plan (DOE-ID 2003b).</p> <p>Other liquid wastes from ICDF Complex operations will be transferred to the evaporation pond if they meet the WAC (DOE-ID 2002b).</p> <p>Aqueous wastes that do not meet the evaporation pond WAC (e.g., petroleum-contaminated media from the oil/water separator) may be treated to meet the ICDF landfill WAC and disposed of in the landfill, or held until appropriate on-Site or off-Site treatment, storage, or disposal is arranged.</p>	<p>ICDF landfill or evaporation pond.</p> <p>In the unlikely event liquid or nonliquid wastes do not meet the ICDF landfill or evaporation pond WAC, the wastes will be containerized, treated, and/or stored at the ICDF Complex as necessary or required until appropriate on-Site or off-Site treatment, storage, or disposal is arranged.</p>

Table 3-1. (continued).

Waste Type	Description	Management Strategy	Disposition
Mixed low-level waste (MLLW)	<p>Waste containing both radioactive and RCRA-hazardous components.</p> <p>Secondary MLLW streams may include (but are not limited to) soil, materials from sampling activities, decontamination materials, filters and other materials associated with dust control, materials from drilling, decontamination materials, operating materials that have become contaminated, petroleum-contaminated materials from the oil/water separator, landfill leachate, and evaporation pond sediments.</p> <p>Activities that may generate MLLW include sampling, management of storage and staging areas, decontamination, dust control, drilling (including purge water and drill cuttings), stabilization activities, operation of the oil/water separator, and landfill and evaporation pond management activities.</p>	<p>All wastes must be characterized, documented, and tracked if necessary as described in Section 5 of this WMP.</p> <p>If necessary, solid waste streams (i.e., those with no free liquids) will be staged in the ICDF Complex and managed in accordance with Section 5 of this WMP and Section 5 of the ICDF Complex O&M Plan.</p> <p>Landfill leachate and liquid from the decontamination sump are pumped directly into the evaporation pond. These wastes will be monitored in accordance with Section 4 of the ICDF Complex O&M Plan and the ICDF Complex Operational and Monitoring Sampling Analysis Plan (DOE-ID 2003c).</p> <p>Other liquid wastes from ICDF Complex operations will be transferred to the evaporation pond if they meet the WAC (DOE-ID 2002b).</p> <p>Aqueous wastes that do not meet the evaporation pond WAC (e.g., petroleum-contaminated media from the oil/water separator) may be treated to meet the ICDF landfill WAC and disposed of in the landfill, or held until appropriate on-Site or off-Site treatment, storage, or disposal is arranged.</p>	<p>ICDF landfill or evaporation pond.</p> <p>In the unlikely event liquid or nonliquid wastes do not meet the ICDF landfill or evaporation pond WAC, the wastes will be containerized, treated, and/or stored at the ICDF Complex as necessary or required until appropriate on-Site or off-Site treatment, storage, or disposal is arranged.</p>

Table 3-1. (continued).

Waste Type	Description	Management Strategy	Disposition
Asbestos and polychlorinated biphenyl (PCB) (≤ 500 ppm)-waste (including radioactively contaminated asbestos and PCB waste)	<p>Waste managed strictly under TSCA regulations.</p> <p>Secondary TSCA-regulated streams may include (but are not limited to) soil, materials from sampling and decontamination activities, and operating materials that have become contaminated.</p> <p>Activities that may generate TSCA-regulated wastes include sampling and decontamination.</p>	<p>All wastes must be characterized, documented, and tracked as described in Section 5 of this WMP.</p> <p>If necessary, solid waste streams (i.e., those with no free liquids) will be staged in the ICDF Complex and managed in accordance with Section 5 of this WMP and Section 5 of the ICDF Complex O&M Plan.</p>	<p>ICDF landfill or evaporation pond.</p> <p>In the unlikely event a liquid or nonliquid waste stream does not meet the ICDF landfill or evaporation pond WAC, the waste will be containerized, treated, and/or stored at the ICDF Complex as necessary or required until appropriate on-Site or off-Site treatment, storage, or disposal is arranged.</p> <p>Management of these stored wastes will be in accordance with Section 5 of the ICDF Complex O&M Plan.</p>

4. GENERAL REQUIREMENTS

The following sections provide general requirements for managing waste generated during ICDF Complex operations. Waste resulting from the ICDF Complex operations will be managed in accordance with the final ROD for OU 3-13, this WMP, the appropriate facility WAC, and related policies and procedures.

4.1 Characterization

The ICDF Complex site is a “clean” site; in other words, no wastes currently contaminate the site. Generally, waste streams generated as a result of ICDF Complex operations will be characterized as industrial waste (IW). Table 3-1 describes the anticipated waste types, activities that may generate waste streams based on the waste type, management strategies for each waste type, and disposition of the waste streams.

Once the waste stream is characterized, it is identified with a tracking number as described in Section 4.1 of the ICDF Complex O&M Plan (DOE-ID 2003b), with the exception that IW will not be tracked. Section 5 of this WMP describes the management of waste once it is identified.

4.2 Use of Process Knowledge

Wastes generated as a result of ICDF Complex operations will be characterized in accordance with the applicable regulations (40 CFR 261.24). Process knowledge may be used to meet all or part of the waste analysis requirements. Typically process knowledge is used when detailed information on the wastes is obtained from existing published or documented studies or the process is well known. An example of this is the identification of discarded lead shielding with a D008 waste code due to the lead content and previous analysis of similar shielding at the INEEL.

Process knowledge allows a generator to declare the waste hazardous in lieu of testing. When acceptable process knowledge is documented and auditable to ensure that a particular constituent is not present in the waste, it is not necessary to test for that constituent. For example, if a waste comes from a well-defined process and there are no organic chemicals associated with the process, then it is not necessary to test for volatile and semivolatile organics. When an operations waste is declared hazardous based on process knowledge, the designation and supporting data must be documented using the recordkeeping procedure outlined in Section 10 of the ICDF Complex O&M Plan.

4.3 Waste Minimization and Pollution Prevention

In an effort to minimize waste at the ICDF Complex, all ICDF Complex personnel will complete INEEL Pollution Prevention Awareness Training. In addition, pollution prevention opportunity assessments for ICDF Complex waste-generating processes will be performed and documented, and environmental support personnel will review work and material purchase orders to ensure that environmentally preferable materials are used effectively. This includes ensuring wastes are minimized.

The ICDF Complex will typically produce waste contained in the following categories: IW, LLW, HW, and MLLW. Appendix A includes a waste reduction strategy and disposition pathway for each waste identified. The following sections describe methods for waste minimization and pollution prevention, and then provide examples of the types of wastes that are expected to be generated that may be subject to pollution prevention (P2)/waste minimization (Wmin) practices.

4.3.1 Waste Minimization

The ICDF Complex operations will institute waste minimization procedures to ensure that unnecessary waste will not be generated, as discussed in the *INEEL Interim Pollution Prevention Plan* (DOE-ID 2000). The ICDF Complex operations have been designed to minimize waste, and management practices employed throughout the operations of the Complex will ensure minimal waste generation. As the majority of the waste to be generated from ICDF Complex operations will be disposed of in the ICDF landfill, general Wmin techniques will be implemented throughout the operations of the ICDF Complex to reduce the volume of waste ultimately sent to the ICDF landfill. The following practices will support Wmin:

- Where sufficient process knowledge is available to make a hazardous waste determination, use of such data will be considered preferable to collection of additional analytical data; waste characterization will be conducted in accordance with Appendix B of the RAWP (DOE-ID 2003a).
- Excess soil meeting the WAG 3 remedial action objectives for radionuclides will be retained and stockpiled at the ICDF Complex for use in ICDF Complex operations. If the soils are used in the landfill, the radionuclide mass would be tracked so that the total radionuclide mass inventory in the landfill is not exceeded.
- Personnel must reduce HW by segregating hazardous and nonhazardous materials. Hazardous materials are CERCLA wastes containing hazardous substances as defined by 40 CFR 261.3.
- Reusable items, such as PPE and tools, will be segregated.
- Contaminated and uncontaminated waste will be segregated.
- Incompatible wastes will be managed and stored separately.
- Personnel should make every attempt to minimize waste through judicious use of consumable materials.
- Every attempt should be made to reduce waste at the source.
- Less hazardous materials should be substituted for more hazardous materials.
- Operations management must focus on avoiding HW when possible.
- Administrative changes, such as inventory control, and paper reduction practices, will be implemented.
- Operations at the ICDF landfill will include careful use of dust suppression materials to avoid waste and possible spills.

4.3.2 Pollution Prevention

The P2 practices at the ICDF Complex work with Wmin goals to reduce wastes generated from project operations. Pollution prevention includes training and incentives to reduce waste at the ICDF Complex. Administrative procedures and project design support the P2 strategy for the ICDF Complex. The *INEEL Interim Pollution Prevention Plan* (DOE-ID 2000) outlines project management procedures to implement P2 at projects. Prejob briefings may include a discussion of P2/Wmin philosophies,

depending upon the nature of the work, and management will encourage personnel to continuously attempt to improve methods for minimizing waste.

Pollution prevention practices will include the following:

- Purchased materials at the ICDF Complex made of recycled material. Administrative materials, trash collection bags, and other items used in the ICDF Complex operations may be purchased that contain recycled material.
- Material substitution. Personnel may replace, reduce, or eliminate materials in processes that generate waste. Solvents may be reduced or eliminated if personnel use a nonhazardous substitute. Oil-based paint may be replaced with a latex variety. Hazardous coatings should be replaced with nonhazardous materials, when available.
- Reuse and recycling. Personnel will explore opportunities to reuse materials whenever feasible. Several waste streams generated during ICDF Complex operations can be reduced or eliminated by reuse or recycling. For example, waste oil and excess fuel can be recycled.
- Reduced waste at its source. Operations waste, particularly waste generated from administrative activities, should be reduced or eliminated by using electronic databases where possible. The O&M Plan describes the approach for the ICDF Complex to utilize electronic means whenever possible.
- Awareness activities. Prejob briefings can effectively disseminate information about P2/Wmin to encourage employee contribution to waste minimization practices.

4.3.3 Office Waste

Office wastes that may be generated at the ICDF Complex include used toner cartridges and waste paper. Appendix A of this WMP provides additional information regarding the waste reduction strategy and disposition pathway for office waste.

4.3.4 Low-Level Waste

Types of LLW that may be generated at the ICDF Complex include, but are not limited to, the following:

- Radiological control technician (RCT) surveillance material
- Anti-contamination clothing
- High-efficiency particulate air (HEPA) filters
- Blotter paper
- Plastic sheeting
- Tape, tools, absorbent, rags
- Personal protective equipment (i.e., respirator cartridges, gloves, boots, and coveralls)
- Defective pumps or other equipment

- Damaged roll-on/roll-off containers.

Appendix A of this WMP provides additional information regarding the waste reduction strategy and disposition pathway for LLW.

4.3.5 Hazardous Waste

Types of HW that may be generated at the ICDF Complex include, but are not limited to, the following:

- Excess chemicals
- Solvent-contaminated rags
- Nickel-cadmium batteries
- Lead acid batteries (if collected for recycling, these are exempt from management as a HW)
- Alkaline batteries that contain mercury, when discarded
- Decontamination liquids/solids
- Off-specification products.

Appendix A of this WMP provides additional information regarding waste reduction strategy and disposition pathway for HW.

4.3.6 Industrial Waste

Types of IW that may be generated at ICDF include, but are not limited to, the following:

- Used oil
- Ethylene glycol
- Used tires
- Used wood
- Dust.

Appendix A of this WMP provides additional information regarding the waste reduction strategy and disposition pathway for IW.

5. MANAGEMENT AND DISPOSITION OF WASTE

Wastes generated as a result of ICDF Complex operations are managed as described in Table 3-1. Once characterized, the wastes will also be managed under the ICDF Complex O&M Plan (DOE-ID 2003b).

5.1 Management in Storage/Staging Areas

Waste from the ICDF Complex operations may be managed in storage or staging areas if necessary. These storage and staging areas are described in detail in Section 5 of the O&M Plan. The ICDF Complex operations wastes are generated in the WAG 3 AOC and may be temporarily managed under the substantive requirements of 40 CFR 264.554, “Staging Piles.” By managing the wastes in the AOC in this manner, placement will not be triggered. If staging of these wastes is not appropriate, wastes generated as part of ICDF Complex operations may be stored in one of the ICDF Complex storage areas that meet the substantive requirements of 40 CFR 262.34(a)(1). The approach for management in these storage and staging areas is briefly described below.

5.1.1 Management in Storage Areas

Liquid waste that cannot be directly disposed of in the ICDF evaporation pond may be stored in one of two ICDF Complex storage areas designated for aqueous storage. Any liquid petroleum-contaminated wastes will also be stored in a designated ICDF Complex storage area awaiting treatment or shipment for off-Site disposal.

5.1.2 Management in Staging Areas

Solid, nonflowing wastes may be staged in one of the designated ICDF Complex staging areas and managed in accordance with Section 5 of the O&M Plan.

5.2 Packaging

Any waste generated as a result of ICDF Complex operations must be properly packaged prior to disposal. Section 4 of the ICDF Complex O&M Plan explains the requirements for packaging wastes for management within the ICDF Complex.

5.3 Labeling and Marking

Containers of ICDF Complex operations waste will be labeled and marked according to Section 4 of the O&M Plan.

5.4 Waste Inspection

Wastes will be inspected in accordance with Section 8 of the O&M Plan.

5.5 Emergency Response

Emergency response is governed by Section 4 of the O&M Plan.

5.6 Tracking, Reporting, and Recordkeeping

To ensure that all ICDF Complex operations waste is accurately tracked, all containers of waste will be managed according to Section 4 of the O&M Plan.

All reports and recordkeeping will comply with the requirements of Section 10 of the O&M Plan.

5.7 Training

During waste management operations, any training will be provided in accordance with Section 2 of the O&M Plan.

5.8 Transportation

Transportation of ICDF Complex operations waste, if necessary, will be performed under Section 4 of the O&M Plan.

6. REFERENCES

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DOE-ID, 2002c, *Waste Acceptance Criteria for ICDF Landfill*, DOE/ID-10865, Rev. 2, Department of Energy Idaho Operations Office, May 2002.

DOE-ID, 2003a, *INEEL CERCLA Disposal Facility Complex Remedial Action Work Plan*, DOE/ID-10984, Rev. 0, Department of Energy Idaho Operations Office, February 2003.

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DOE O 435.1, 2001, "Radioactive Waste Management," U.S. Department of Energy, August 28, 2001.

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Appendix A

Waste Minimization

Waste Minimization

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Date 5/01/02	Revision 0

A.1 PURPOSE

The purpose of this overview is to (1) identify waste generated at the ICDF Complex and (2) identify a waste reduction strategy.

A.2 SCOPE AND APPLICABILITY

This overview applies to waste generated at the ICDF Complex including office waste, LLW, HW, and IW. It includes a waste reduction strategy and a disposition pathway for each waste identified.

A.3 REGULATORY REQUIREMENTS

None identified.

A.4 EQUIPMENT

None identified.

A.5 IMPLEMENTATION

Implementation may include the following activities:

- All ICDF Complex employees—complete Pollution Prevention Awareness Training as described in the ICDF Complex Health and Safety Plan.
- ICDF Complex Environmental Support Personnel—review work and material purchase orders to ensure environmentally preferable materials are used effectively. This includes ensuring wastes are minimized.
- Schedule, perform, and document the results of Pollution Prevention Opportunity Assessments for ICDF Complex waste-generating processes.
- Document quantities of waste generated, recycled, excessed, sent off-Site, or to the CFA landfill.
- Prepare the biennial report on EPA Form 8700-13B. Include the following:
 - Efforts undertaken during the year to reduce the volume and toxicity of waste generated
 - Changes in volume and toxicity of waste actually achieved during the year in comparison to previous years to the extent such information is available.

The ICDF Complex will typically produce waste contained in the following categories: office waste, LLW, HW, and IW. The following sections are separated into these categories and include a waste reduction strategy and disposition pathway for each waste identified.

A.5.1 Office Waste

Office wastes that may be generated at the ICDF Complex include, but are not limited to, the following:

- Used toner cartridges
- Waste paper.

The waste reduction strategy and disposition pathway for office waste is provided in Table A-1.

Table A-1. Office waste reduction strategy and disposition pathway.

Waste Stream	Waste Reduction Strategy	Disposition Pathway
Used toner cartridges	The ICDF Complex will replace cartridges only when necessary.	Recycle
Waste paper	The ICDF Complex plans to do as much as possible electronically, eliminating excess paper.	CFA Landfill

A.5.2 Low-level Waste

Types of LLW that may be generated at the ICDF Complex include, but are not limited to, the following:

- RCT surveillance material
- Anti-contamination clothing
- HEPA filters
- Blotter paper
- Plastic sheeting
- Tape, tools, absorbent, rags
- PPE (i.e., respirator cartridges, gloves, boots, and coveralls).

The waste reduction strategy and disposition pathway for LLW is provided in Table A-2.

Table A-2. Low-level waste reduction strategy and disposition pathway.

Waste Stream	Waste Reduction Strategy	Disposition Pathway
RCT surveillance material	The ICDF Complex will minimize the amount of material taken into contamination areas.	ICDF landfill ^a
Anti-contamination clothing	The ICDF Complex will minimize the amount of material taken into contamination areas.	ICDF landfill ^a

Table A-2. (continued).

Waste Stream	Waste Reduction Strategy	Disposition Pathway
HEPA filters	The ICDF Complex will only change filters when necessary.	ICDF landfill ^a
Blotter paper	The ICDF Complex will minimize the amount of material taken into contamination areas.	ICDF landfill ^a
Plastic sheeting	The ICDF Complex will minimize the amount of material taken into contamination areas.	ICDF landfill ^a
Tape, tools, absorbent, rags	The ICDF Complex will minimize the amount of material taken into contamination areas.	ICDF landfill ^a
PPE	The ICDF Complex will minimize the amount of material taken into contamination areas.	ICDF landfill ^a

a. Must meet the landfill WAC.

A.5.3 Hazardous Waste

Types of HW that may be generated at the ICDF Complex include, but are not limited to, the following:

- Excess chemicals
- Solvent-contaminated rags
- Nickel cadmium batteries
- Lead acid batteries (if collected for recycling, these are exempt from management as a HW)
- Alkaline batteries that contain mercury, when discarded
- Decontamination liquids/solids.

The waste reduction strategy for HW is provided in Table A-3.

Table A-3. Hazardous waste reduction strategy and disposition pathway.

Waste Stream	Waste Reduction Strategy	Disposition Pathway
Excess chemicals	The ICDF Complex will ensure that all chemicals and quantities have a specific use.	Place on INEEL excess chemical inventory list
Solvent-contaminated rags	The ICDF Complex will minimize the amount of material used and look for alternative nonhazardous products to replace solvents.	Characterize and manage per the WMP
Nickel cadmium batteries	The ICDF Complex will only change batteries when necessary.	Recycle
Lead acid batteries	The ICDF Complex will only change batteries when necessary.	Recycle
Incandescent lamps	Use long-life halide bulbs if possible. The ICDF Complex will only change when necessary.	Recycle

Table A-3. (continued).

Waste Stream	Waste Reduction Strategy	Disposition Pathway
Decontamination liquids/solids	Decontamination activities will only be performed when required.	Liquids – ICDF evaporation pond ^a Solids – ICDF landfill ^a

a. Must meet the appropriate WAC.

A.5.4 Industrial Waste

Types of IW that may be generated at the ICDF Complex include, but are not limited to, the following:

- Used oil
- Ethylene glycol
- Used tires
- Used wood
- Dust.

The waste reduction strategy for IW is provided in Table A-4.

Table A-4. Industrial waste reduction strategy and disposition pathway.

Waste Stream	Waste Reduction Strategy	Disposition/Treatment
Used oil	ICDF will only change oil when necessary.	Recycle (on-spec) or send off-Site (off-spec)
Ethylene glycol	ICDF will only replace ethylene glycol when necessary.	Off-Site
Used tires	ICDF will only change tires when necessary.	Excess through excess yard
Used wood	Good operating practice. Reuse whenever possible.	Excess through excess yard or send to ICDF landfill ^a
Dust	Good operating practice. Sweep roads and paved areas only when necessary. Use water when necessary to control dust generation.	ICDF landfill ^a if contaminated, otherwise, CFA Landfill.

a. Must meet the WAC.

A.6 REFERENCES AND INTERFACES

Training references and interfaces remain to be determined.

A.7 RECORDS

Records will include the following:

- Operations records containing information on types and quantities of waste generated and disposed of at the ICDF Complex

- Shipping Records (for waste dispositioned at locations other than the ICDF)
- EPA Form 8700-13B
- Pollution Prevention Opportunity Assessment results.